Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIELLE A. BRIGHT and
RONALD L. PIRRELLI

Appeal No. 1997-2010
Application No. 08/332,671[1]

ON BRIEF

Before WARREN, WALTZ, and SPIEGEL, Administrative Patent Judges.

WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal pursuant to 35 U.S.C. § 134 from the examiner's final rejection of claims 1 through 12, which are all of the claims in this application.

The Invention

[1] Application for patent filed November 1, 1994.

According to appellants, the invention is directed to a process for the synthesis of a hydrocarbyl bis(dihydrocarbyl phosphate) by the reaction of an unstable hydrocarbyl-containing diol with a dihydrocarbyl halophosphate in the presence of a Lewis acid catalyst where the removal of hydrogen halide by-product is enhanced by the presence of an effective amount of a liquid hydrocarbon (Brief, page 2). Claim 1 is illustrative of the subject matter on appeal and is attached as an Appendix to this decision.

The Reference

The examiner has relied upon the following reference as evidence of obviousness:

Nichols 3,642,959 Feb. 15, 1972

The Rejection

Claims 1 through 12 stand rejected under 35 U.S.C. § 103 as unpatentable over Nichols (Answer, page 3, referring to Paper Nos. 5 and 7).

Opinion

After careful consideration of the record, including the opposing arguments in the examiner’s Answer and appellants’

Brief and Reply Brief, we agree with appellants that the examiner's rejection is not sustainable for reasons which follow.

Independent claim 1 on appeal recites, in Jepson-type form, a process of reacting a diol with a dihydrocarbyl halophosphate in the presence of a Lewis acid catalyst to form a hydrocarbyl bis(dihydrocarbyl phosphate) product, wherein the improvement comprises the presence of an effective amount of a liquid hydrocarbon to enhance the removal of hydrogen halide by-product, decrease the reaction temperature, and increase the yield and purity of the product.

The examiner recognizes that Nichols is not directed to the reaction recited in claim 1 on appeal but is directed to "an analogous process that differs because it is not primarily directed to producing products derived from diols, although diols are listed among suitable alcohols in column 3, lines 61 and 62." (Answer, page 4). The examiner concludes that it would have been obvious to use the hydrocarbon solvent in view

of Nichols because the reactants and products of Nichols and appellants' process are "structurally similar" and Nichols discloses the same problem and solution as appellants (*id.*). The examiner states that Nichols discloses a problem due to the presence of by-product HCl and his solution was to incorporate a hydrocarbon solvent into the reaction mixture to facilitate removal of HCl upon reflux.

Therefore, although the HCl by-product might affect the reactions differently, the process of Nichols and the process of appealed
claim 1 both have the same problem and solution for HCl removal (Answer, pages 4-5).

We find that the disclosure of Nichols is directed to the production of *mono*phosphates and there is no disclosure, suggestion or teaching of the production of bis phosphates as recited in claim 1 on appeal. The examiner is correct that Nichols discloses diols as a possible alcohol reactant (see column 3, lines 61-62) but Nichols does not disclose, teach or suggest that the additional hydroxy group of the diol is

involved in any reaction. Nichols discloses that the alcohol reactant is ROH where R may be hydroxyalkyl, and thus does not teach that any second hydroxyl moiety will be involved in the reaction since R remains unchanged (see the formula ROH where R may be hydroxyalkyl, at column 3, lines 45-53, and the product recited in claim 1 at columns 5-6).

In addition, contrary to the examiner's assertion, the problem disclosed by Nichols would not have been relevant to appellants' claimed process. Nichols discloses that the principal problem in the well known reaction to produce the

desired methyl diphenyl phosphate is that the "methyl substituent of the phosphate ester is far more susceptible to this adverse cleavage reaction with hydrogen chloride than the phenyl group"
and no practical way has been found to reduce this undesirable cleavage so that large scale commercial manufacture of this compound could become a reality (column 1, line 44 - column 2, line 10). In appellants' claimed process, there would be no possible cleavage of a methyl substituent since the diol forms

a linkage between the two phosphate groups (see appellants' specification, page 3, lines 1-16). Accordingly, one of ordinary skill in the art, aware of the problem and solution taught by Nichols, would not have been motivated to use the teachings of Nichols in the different process as claimed by appellants.

For the foregoing reasons, we determine that the examiner has not established a *prima facie* case of obviousness in view of the reference evidence. Accordingly, the rejection of claims 1 through 12 under 35 U.S.C. § 103 as unpatentable over Nichols is reversed.

Remand to the Examiner

Upon a review of the record, this application is remanded to the examiner for appropriate action as noted below.

The examiner's rejection in Paper No. 3, dated April 4, 1995, included a rejection of all the pending claims under § 103 as unpatentable over Albright (U.S. Patent No. 4,133,846, issued Jan. 9, 1979) or Zama (U.S. Patent No. 4,343,732, issued Aug. 10,

1982). These rejections were withdrawn in view of applicants' arguments (see page 4, Final Rejection, Paper No. 5, dated Sept. 6, 1995). However, upon the return of this application to the jurisdiction of the examiner, the examiner should review Albright and Zama, and compare the scope of the claimed subject matter with the disclosure and teachings of Albright and Zama. The examiner should note that Albright and Zama are directed to the same process recited in the Jepson-type preamble of appellants' claims and both references teach the optional use of liquid hydrocarbon solvents (see Albright, column 4, lines 45-49; Zama, column 4, lines 21-22). Although neither Albright nor Zama disclose examples directed to liquid hydrocarbon solvents, the examiner should consider that the examples of a reference are not the only teaching but all of a reference is available for what it clearly teaches. *In re Widmer,* 353 F.2d 752, 757, 147 USPQ 518, 523 (CCPA 1965). The examiner should also consider the totality of the record, including the disclosure and teachings of the references weighed against appellants' arguments and evidence of unexpected results (see Examples 6-10 with Runs 6-11 on page 8

of the specification). Any probative comparative results must be commensurate in scope with the claimed subject matter,[2] have all variables fixed except the one proposed to show unobvious results,[3] and must establish that the results are truly unexpected.

Accordingly, this application is remanded to the examiner for review and consideration of the foregoing matters.

Summary

The rejection of claims 1 through 12 under 35 U.S.C. § 103 as unpatentable over Nichols is reversed.

The decision of the examiner is reversed. This application is remanded to the examiner for appropriate action as noted above.

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[2]*In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

[3]*In re Dunn,* 349 F.2d 433, 439, 146 USPQ 479, 483 (CCPA 1965).

This application, by virtue of its "special" status requires an immediate action. Manual of Patent Examining Procedure § 708.01 (7th ed., July 1998).

REVERSED/REMANDED

CHARLES F. WARREN Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CAROL A. SPIEGEL Administrative Patent Judge	)	

lp

Appeal No. 1997-2010
Application No. 08/332,671

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APPENDIX

Claim 1. In a process for the synthesis of a hydrocarbyl bis(dihydrocarbyl phosphate) which comprises the reaction of an unstable hydrocarbyl-containing diol with a dihydrocarbyl halophosphate in the presence of a Lewis acid catalyst, wherein the improvement comprises the additional presence of an effective amount of a liquid hydrocarbon to enhance the removal of hydrogen halide by-product and decrease the reaction temperature while increasing the yield and purity of hydrocarbyl bis(dihydrocarbyl phosphate).

Leticia

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APJ WALTZ

APJ WARREN

APJ SPIEGEL

DECISION: REVERSED/REMANDED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s):

Prepared: December 5, 2000

Draft Final

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OB/HD GAU

PALM /ACTS 2/BOOK
DISK(FOIA)/REPORT